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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,625	09/29/2005	Seong-Yeol Hyeon	0630-2446PUS1	5508
2292 7590 01/14/2009 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER KRAMER, DEVON C				
ART UNIT 3746		PAPER NUMBER		
NOTIFICATION DATE 01/14/2009		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

# Office Action Summary

**Application No.**

10/551,625

**Applicant(s)**

HYEON, SEONG-YEOL

**Examiner**

JESSICA L. MYERS

**Art Unit**

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 9/29/08.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-14 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 29 September 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/5508)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

1. The amendment and arguments filed on 9/29/08 under 37 CFR 1.131 have been entered and considered.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over WIPO International Publication, WO 02/079649 to Song (Song) in view of U.S. Patent 2,801,045 to Philipp (Philipp).

**In Reference to Claim 1**

Song teaches a reciprocating compressor comprising:

a driving unit (reciprocating motor (20)) having an outer stator (outer stator (21B)) and an inner stator (inner stator (21A)) disposed at a predetermined air gap there between, and a moving member (magnet support member (22A)) positioned between the outer stator and the inner stator and linearly and reciprocally moved;

a compression unit (compression unit (30)) having a cylinder (cylinder (32)) fixed at an inner circumferential surface of the inner stator (see figure 3), and a piston (piston (31)) connected to the moving member and linearly moved in the cylinder;

a support unit (frame unit (40)) supporting the compression unit and the driving unit; and

a resonant spring unit (spring support (100) and springs (51 and 52)) positioned between a rear portion of the driving unit and a rear frame of the support unit (rear frame (43) of support unit (40)), the resonant spring unit including:

a spring support member fixedly connected with the piston (spring support (100) is connected to a base of the piston, see figure 3);

first and second resonant springs abutting at corresponding first and second support portions of the spring support member (front springs (51) and rear springs (52)), the first and second resonant springs transferring an elastic force to the piston; and

Song fails to teach that the springs are attached to the support member via spring sheet members that are inserted into a through hole in the support portion.

Philipp teaches a similar spring supported refrigerating apparatus where the springs (70) are supported on upwardly extending (along the axis of the supported spring) studs (66) which are fitted into a through hole formed in the spring supporting bracket (54), see figure 3. The studs (66) have annular sheet member faces around which the springs are secured. It would have been obvious to one of ordinary skill in the art at the time of invention to support the springs of Song in the manner taught by Philipp, since

the stud of Philipp would provide a more secure way of fastening the two than the fixing protrusions of Song.

In Reference to Claim 2

Song as modified by Philipp teaches the compressor of claim 1 (see the rejection of claim 1 above), wherein the cylinder is fixed at the inner circumferential surface of the inner stator by a press-fit method (The cylinder (32) of Song is fixed to the front frame (41) which holds the inner stator (21A), see page 2 lines 2-9). The requirement that the cylinder be fixed to the stator via a press fit is a product by process requirement. The method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

In Reference to Claim 3

Song as modified by Philipp teaches the compressor of claim 1 (see the rejection of claim 1 above), wherein the support unit comprises a first frame (front frame (41)) supporting an outer circumferential surface of the cylinder, one side surface of the outer stator, and one side surface of the inner stator, a second frame (middle frame (42)) supporting the other side surface of the outer stator; and a third frame (rear frame (43)) forming the rear frame, the third frame being coupled with the second frame and receiving the resonant spring unit (see page 2 lines 10-14).

In Reference to Claim 4

Song as modified by Philipp teaches the compressor of claim 3 (see the rejection of claim 3 above), wherein, in the first frame, an outer circumferential surface of the cylinder is fixed at the inner circumferential surface of the first frame by a press-fit

method (The cylinder (32) of Song is fixed to the front frame (41) which holds the inner stator (21A), see page 2 lines 2-9), one side surface of the inner stator is supported at its inner side surface, and one side surface of the outer stator is supported at its outer side surface (see figure 3). The requirement that the cylinder be fixed to the first frame via a press fit is a product by process requirement. The method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

In Reference to Claim 5

Song as modified by Philipp teaches the compressor of claim 3 (see the rejection of claim 3 above), wherein the spring support member (spring support (100), see figure 7) is mounted to a portion where the piston and the moving member are connected (see figure 3 as well as page 7 lines 14-18), plural first resonant springs (front springs (51)) are disposed between the second frame and one side surface of the spring support member; and plural second resonant springs (rear springs (52)) are disposed between the third frame and the other side surface of the spring support member.

In Reference to Claim 6

Song as modified by Philipp teaches the compressor of claim 5 (see the rejection of claim 5 above), wherein the first resonant springs are arranged at a predetermined interval in a circumferential direction (see figure 7, where the first springs (51) are arranged at approximately every 90° circumferentially), and the second resonant springs are arranged between the first resonant springs respectively (the second springs (52) are arranged in between the first springs by approximately 45°).

In Reference to Claim 7

Song as modified by Philipp teaches the compressor of claim 5 (see the rejection of claim 5 above), wherein the first resonant springs and the second resonant springs are disposed so as to overlap at a predetermined section in an axial direction of the compressor (see figure 3 where the front and rear springs overlap axially between the rear supports (30) and the front supports (120)).

In Reference to Claim 8

Song as modified by Philipp teaches the compressor of claim 5 (see the rejection of claim 5 above), wherein the first and second springs are disposed to be parallel in the axial direction of the compressor (see figure 3 where the first and second springs lie parallel to the central axis of the piston as well as to each other).

In Reference to Claim 9

Song as modified by Philipp teaches the compressor of claim 5 (see the rejection of claim 5 above), wherein the first and the second resonant springs are formed of compression coil springs, and the first and the second resonant springs is mounted at spring support member so that an end portion of spring, a center of spring and a center of piston are arranged in line (The springs are in line with the piston in the sense that where the first and second springs lie parallel to the central axis of the piston as well as to each other).

In Reference to Claim 10

Song as modified by Philipp teaches the compressor of claim 5 (see the rejection of claim 5 above), wherein the spring support member comprising: a coupling portion

(support body (110), which is fixed to a member that couples the piston (31) to the magnet support member (22A)) coupled with a portion where the moving member and the piston are connected, and positioned at a rear portion of the piston (see figure 3); a first support portion (front supports (120)) prolonged from the edge of the coupling portion at a predetermined interval in a circumferential direction and supporting the first resonant spring (see figure 7, where the first springs (51) and their supports are arranged at approximately every 90° circumferentially); and a second support portion (rear supports (130)) positioned between the first support portions and supporting the second resonant spring (the second springs (52) and their supports are arranged in between the first springs by approximately 45°).

In Reference to Claim 11

Song as modified by Philipp teaches the compressor of claim 10 (see the rejection of claim 10 above), wherein the disc-shaped coupling portion has a passage through which a fluid passes (see figure 5 where support body (110) has a hole through its center), at its center portion, and fixed at portion where the piston and the moving member are connected (the support body (110) is fixed to the member that couples the piston (31) to the magnet support member (22A)).

In Reference to Claim 12

Song as modified by Philipp teaches the compressor of claim 10 (see the rejection of claim 10 above), wherein the first support portion is bent, rearwardly prolonged from the edge of the coupling portion (see figure 6 where front supports (120) are bent out of the lane that contains support body (110)), and formed so that its end



portion is bent toward outside of the coupling portion to support the first resonant springs (it is bent outside the plane containing (110)).

In Reference to Claim 13

Song as modified by Philipp teaches the compressor of claim 10 (see the rejection of claim 10 above), wherein the second support portion is radially prolonged from the edge of the coupling portion at a predetermined interval (see figure 7 where the second supports (230) extend a given distance radially from the center of support portion (210)).

In Reference to Claim 14

Song as modified by Philipp teaches the compressor of claim 10 (see the rejection of claim 10 above), wherein the first support portion and the second support portion are alternatively formed in a circumferential direction of the coupling portion (see figure 7, where the first springs (51) are arranged at approximately every 90° circumferentially and the second springs (52) are arranged in between the first springs by approximately 45°).

***Response to Arguments***

4. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 3,248,044 to Parker teaches another method of attaching mounting springs to a frame.
6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **JESSICA L. MYERS** whose telephone number is (571)270-5059. The examiner can normally be reached on Monday through Friday, 8:30am to 5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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